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PENICILLIN-RESISTANT GONORRHOEA

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Penicillin has been the drug of choice in the treatment of gonorrhoea for many years. However, over the years the gonococcus (*Neisseria gonorrhoeae*) has been gradually developing resistance to this antibiotic. Because of this resistance, there has been an associated steady increase in the amount of penicillin necessary to treat gonorrhoea adequately. The large doses now required to achieve treatment success have become cumbersome to administer, and require the addition of oral probenecid to maintain the high penicillin blood levels necessary to counteract the increase in resistance. Despite the increased resistance, penicillin was considered, until recently, to be highly effective in the treatment of gonorrhoea.

In early 1976, gonococcal strains began to be isolated which were completely resistant to penicillin. They were isolated from patients in England and the United States, particularly from patients who had acquired their disease in the Western Pacific region. The reason these organisms were resistant to penicillin was their ability to produce an enzyme, called penicillinase or beta-lactamase, which is capable of inactivating penicillin, thereby rendering it ineffective. This enzyme was also shown to be active against other antibiotics chemically similar to penicillin, such as ampicillin, carbenicillin and some cephalosporins.

The appearance of a penicillin-resistant strain of gonococci poses very serious problems for the control of gonorrhoea. Treatment costs, of necessity, will have to be substantially increased as more costly alternative antibiotics are used. To prevent establishment of such strains, patients infected with these organisms and their contacts should be vigorously sought, promptly treated and followed closely after treatment.

Medical practitioners have an important role to play in surveillance for the presence of these gonococcal strains in their respective communities. The following are some guidelines that should be observed when treating patients with gonorrhoea:

- (1) Penicillin continues to be the drug of choice for the treatment of uncomplicated gonorrhoea. The number of penicillin-resistant organisms causing gonorrhoea is currently small and the majority of cases should still respond adequately to the recommended treatment with penicillin (4.8 million units of aqueous procaine penicillin G administered intramuscularly together with 1 gram of probenecid orally).
- (2) Ideally, all patients with gonorrhoea should be seen one week after treatment and cultured for assessment of treatment failure. Apparent penicillin failures could possibly be confused with post-gonococcal urethritis caused by organisms other than penicillin-resistant gonococci; this stresses the importance of follow-up

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cultures to detect the presence of the gonococcus.

- (3) The drugs of choice for treating adult patients with penicillin-resistant gonorrhoea are Spectinomycin (2 gm intramuscularly) or Kanamycin (2 gm intramuscularly). Care must be taken because these drug regimens are not an effective treatment for syphilis, which can be a concomitant problem in some patients.
- (4) Patients who have newly-acquired infections from the Western Pacific region are at a higher risk of acquiring penicillin-resistant strains of gonorrhoea and these patients should be highly suspect. In these patients cultures prior to, and following, treatment should be obtained.
- (5) In those countries and territories with appropriate facilities, steps should be taken to test all recent gonococcal isolates for penicillin resistance. This can be done most simply by using a 10-unit penicillin sensitivity disc. Isolates with inhibition zones of less than 20 mm should be suspected of being resistant. For more specific information on laboratory protocols for examining gonococci for penicillin resistance or to arrange to have indigenous gonococcal isolates tested for penicillin sensitivity, contact the Epidemiologist of the South Pacific Commission.
- (6) When it is suspected that a penicillinase-producing strain of gonococcus exists, the Epidemiologist of the South Pacific Commission should be contacted immediately by cable, so that confirmation can be established and appropriate measures taken.

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